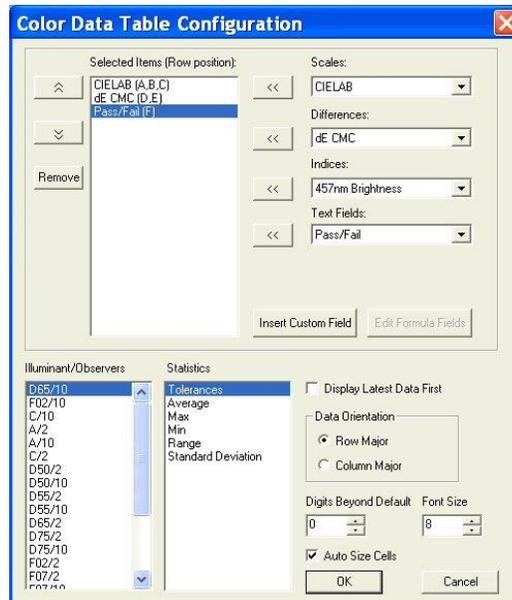


EasyMatch® QC Lesson 6

Using the Autotolerancing Feature

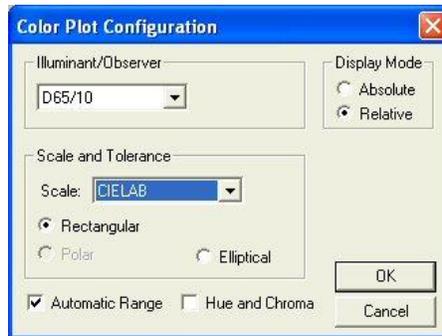
CMC autotolerancing can be used to automatically fit a CMC ellipsoid to a standard and to calculate CIE $L^*a^*b^*$, CIEL $^*C^*h$, or Hunter L, a, b tolerances for that standard based on the size and shape of that ellipsoid. In this lesson, we will set up a job and a standard so that autotolerances will be calculated and used for that standard.

1. **Set up a New Job.** Open a new job and configure it to include a Color Data Table with the following specifications. See Lesson 1 if you need help.
 - a. Scale CIELAB
 - b. Differences dE CMC
 - c. Indices None
 - d. Text Fields Pass/Fail
 - e. Illuminant/Observers D65/10
 - f. Statistics Tolerances
 - g. Data Orientation Row Major
 - h. Digits Beyond Default 0
 - i. Font Size 8
 - j. Auto Size Cells Checked



2. **Configure a 2D Color Plot.** Configure the job to include a 2D Color Plot with the following specifications:

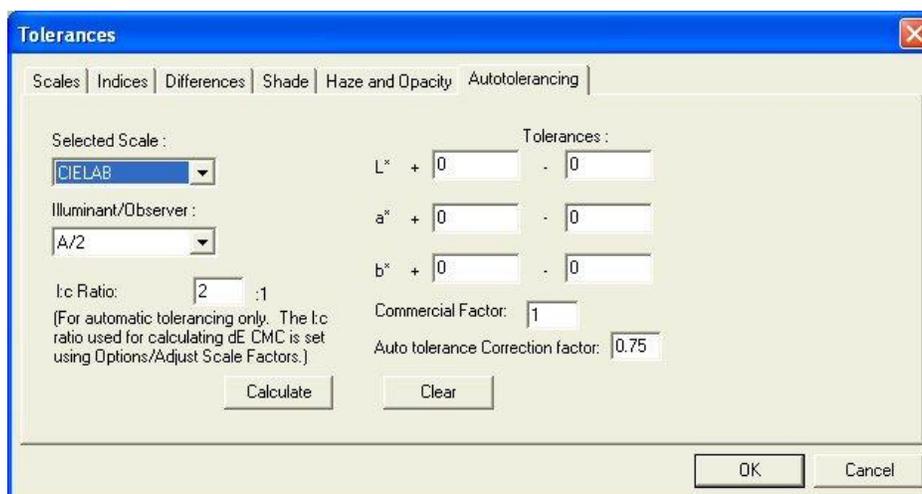
- a. Illuminant/Observer D65/10
- b. Display Mode Relative
- c. Scale and Tolerance CIELAB, Elliptical
- d. Automatic Range Checked
- e. Hue and Chroma Unchecked



3. **Standardize.** Standardize the instrument and then read your standard. Name the standard however desired.

4. **Define Autotolerancing Properties.** Right-click on the standard in the Job Tree and choose **Properties** from the menu that appears.

- a. On the Standard Properties screen that appears, click the **Tolerances** button.
- b. On the Tolerances screen, click the **Autotolerancing** tab.

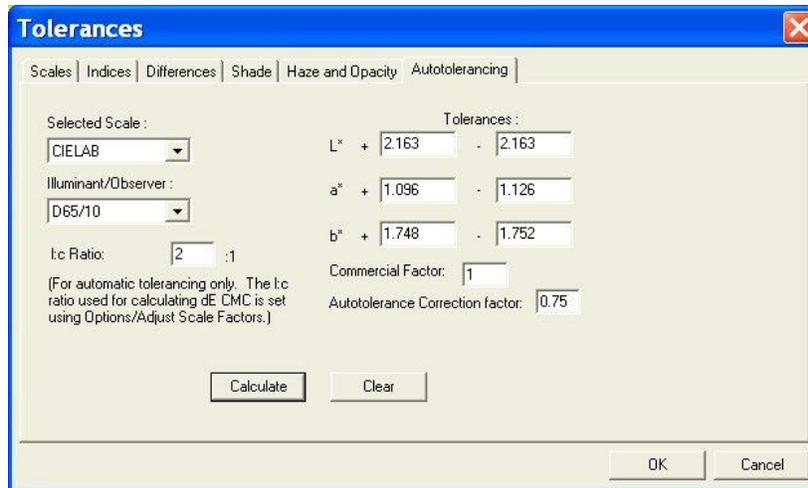


- c. Under Selected Scale, select CIELAB to match the color scale we selected for the Color Data Table and 2D Color Plot. Also select the D65/10 illuminant/observer combination to match those selected for the Color Data Table and 2D Color Plot.
- d. Enter 2:1 for the l:c ratio. This is the default value used for CMC calculations in the textile industry. Your industry may suggest a different value.
- e. Enter 1 for the Commercial factor. This is the default value used to represent one unit of just perceptible difference, but this value may be adjusted to tighten or loosen the tolerance, as desired.
- f. Enter 0.75 for the Auto tolerance Correction factor. This is the default value used to estimate the percentage of the tolerance box that is taken up by the CMC ellipsoid (excluding the 25% of the box volume that does not overlap with the ellipsoid). This value may be adjusted to tighten or loosen the tolerance, as desired. (A value of 1 would estimate the entire volume of the tolerance box, including those areas outside the CMC ellipsoid.)

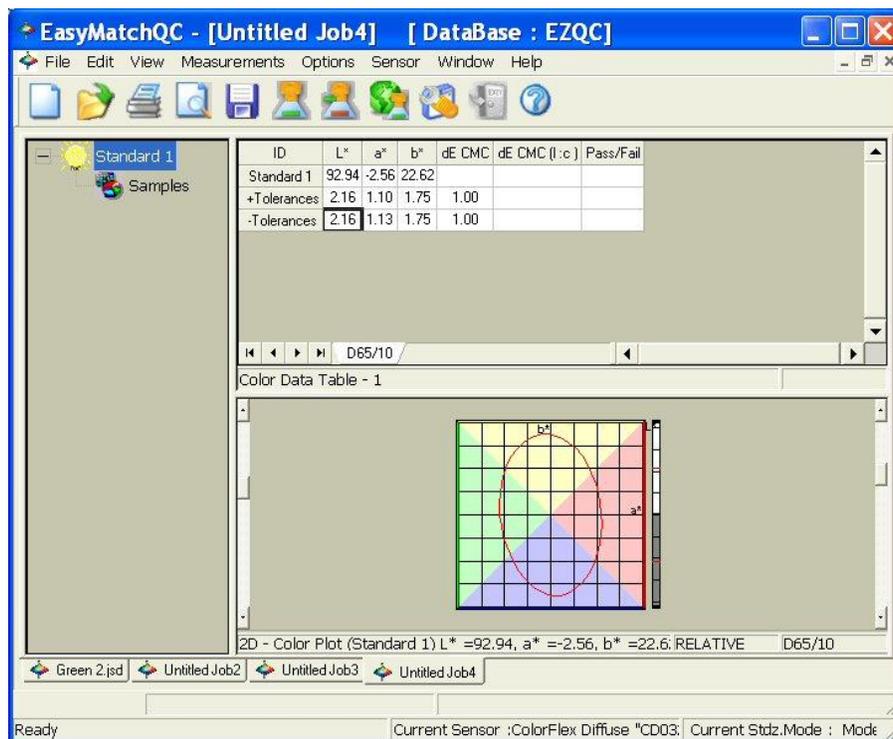
The screenshot shows the 'Tolerances' dialog box with the following settings:

- Selected Scale: CIELAB
- Illuminant/Observer: D65/10
- l:c Ratio: 2 :1
- Commercial Factor: 1
- Auto tolerance Correction factor: 0.75
- Tolerances: L* + 0 - 0, a* + 0 - 0, b* + 0 - 0

- g. Click the **Calculate** button. The $L^*a^*b^*$ D65/10° tolerances for this standard are automatically calculated and shown in the Tolerances boxes.



- h. Click **OK** twice to accept the tolerances. You will now see the tolerances in your Color Data Table and 2D Color Plot for this standard.



- i. Save the job and save the standard to the database. The automatically-generated tolerances will also be saved.

5. **Read Samples.** You may now read samples to be compared to this standard.